

552,568

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
28 October 2004 (28.10.2004)

PCT

(10) International Publication Number
WO 2004/091495 A2

- (51) International Patent Classification⁷: **A61K**
- (21) International Application Number:
PCT/US2004/011003
- (22) International Filing Date: 9 April 2004 (09.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/461,941 9 April 2003 (09.04.2003) US
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS AND METHODS RELATED TO PRODUCTION OF ERYTHROPOIETIN

(57) Abstract: Disclosed are methods and compositions that are related to the production of erythropoietin. The disclosed compositions generally comprise a poly amino acid, such as a poly amino acid comprising one or more glutamic acid residues. The production of erythropoietin by use of the disclosed compositions and methods can take place *in vivo*, in which the proliferation of a subject's erythropoietin-producing cells leads to an increased level of production of erythropoietin, *in vitro*, in which increased proliferation of cultured erythropoietin-producing cells leads to an increased production of erythropoietin, *ex vivo*, in which cells or tissues harvested from a subject produce erythropoietin. The disclosed compositions can be administered to a subject or applied to cells or tissues to stimulate increased production of erythropoietin. The disclosed compositions and methods can be used, for example, to treat anemia, such as anemia associated with diseases and disorders such as chronic renal failure, end stage renal disease, malignancies, HIV infections and AIDS, rheumatoid arthritis, myeloma, and myeloplastic syndrome, and other diseases and disorders.

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